50th Meeting of the NOAA Science Advisory Board
29-30 July 2014
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Wednesday, July 30, 2014

Executive Working Session Synthesis

Framing the Discussion

Dr. Kathryn Sullivan proposed overarching questions for the Executive Working session discussion, which addressed: 1) NOAA in the future, 2) best practices for managing an R&D portfolio, and 3) how NOAA R&D is translated to practice. The SAB's discussion with NOAA during the Executive Session outlined considerations for developing NOAA's R&D portfolio by specifying, designing, and building the future.

The questions posed to the SAB as a framework for the discussions are as follows:

1. The SAB could engage in "blue sky" discussions about the future of NOAA (5+ years).

    a. What does the future look like with respect to NOAA's mission and Dr. Sullivan's priorities?

    b. What are the drivers of change into the future? What are some of the trends that could lead to disruptive technologies or policies affecting NOAA's mission priorities?

    c. How would these drivers of change influence NOAA's science, partnerships, and capacity, now and moving forward? (e.g., Is the research culture appropriate? Are there new kinds of public-private relationships that NOAA should pursue? Are there different kinds of research capacities that might be needed?)

    d. How should this vision be implemented in order to build a more effective NOAA in the future?

2. NOAA has a wide range of research, programs, partners, etc. The SAB could discuss best practices for science portfolio management. The SAB Portfolio Review Task Force report began to address this concept, and could be used as a starting point. It may be relatively easy to see what the needs are, but it is much harder to execute those needs.

    a. What is the right architecture for prioritizing research investments, in light of clear mission priorities?

    b. Where and how does risk management (i.e., the ability to fund high risk, high payoff R&D) fit into NOAA's science portfolio and portfolio management practices?

3. The SAB could consider how NOAA science is translated to practice (e.g., coastal resilience and resource management).

a. Interpreting and communicating science to decision-makers is a growing body of research; how can it be applied to NOAA?

b. How can NOAA science be informed by users, but also successfully inform users?

Synthesis of the Discussion in the Context of the Questions

The SAB and NOAA emphasized that the future of NOAA should include enhanced communication and coordination with end-users and stakeholders. This would foster an environment for successful co-production of knowledge, and the translation of data and information to wisdom, knowledge, and action. The end-user and stakeholder communities may shift through time in composition and values held, and this should be considered in how NOAA forges these partnerships.

Designing the future should begin by outlining future scenarios. Three scenarios were created for use in developing the NOAA Next Generation Strategic Plan; these could be used as a starting point for developing the NOAA future R&D portfolio, and more scenarios could be added if needed. The scenarios should include input from the social sciences, compelling stories of the future, and consideration of emerging and disruptive technologies. Current emergent technologies that were mentioned during the discussion included the commercial space launch environment, low cost commercialization of satellites, 3-D printing, informatics, robotics, and social media, but there may be additional technologies to consider.

Building NOAA toward the future includes assessing NOAA's capabilities now, and how those may strategically change or be organized into the future. A Strengths, Weaknesses, Opportunities, Threats (SWOT) analysis could be conducted on the existing portfolio with the future scenarios in mind. Additionally, the SAB has produced reports in the past that are good places to start to frame NOAA's R&D portfolio logic (e.g. the R&D Portfolio Review Report).

The R&D portfolio is the framework for NOAA's products and services of the future, and it needs to be constructed in a coherent and compelling fashion. The R&D portfolio logic should provide clear definitions of its basic, applied, testing, transition, infrastructure, long-term priorities, and development components. The portfolio needs to define the scale and scope of R&D topics (i.e. broad, gap-filling, niche-playing), and determine the R&D priorities on different scales (e.g. short-term vs. long-term core strengths). The balance between the push and pull from researcher and stakeholder relationships should be addressed, and social sciences need to be integrated throughout. Furthermore, the portfolio should consider the lifetime of R&D components. When do research themes or projects pivot to something new? When are emerging topics integrated into the portfolio in a larger role? How fast can/should R&D results transition to products and services?

Those that conduct the day-to-day research to operations of NOAA should be included in the design of the R&D portfolio framework. NOAA needs to evaluate how to use more effectively its programs and partners. Programs and partners may include existing partners and related programs (e.g. Cooperative Institutes, Sea Grant, RISAs, Regional Collaboration Teams, NCCOS CSCOR), core R&D facilities (e.g. Fisheries Science Centers, Laboratories), and new partners (e.g. sustainable capitalism investors, private industries, local and state governments). Roles and responsibilities in each of these categories should be clearly defined. Who provides nimbleness and adaptability? Who provides innovation and creativity? Who maintains the stability of long term R&D projects? Who provides leveraging?

Taking NOAA R&D into the future may require a shift in NOAA's culture. NOAA needs to consider possible mechanisms for positioning its R&D portfolio to provide support in the context of cultural shifts, innovation, creativity, communication and problem-solving. What are the mechanisms and/or approaches that support a growth strategy? How does organizational excellence provide the support that allows the necessary cultural and organizational shifts? While priorities and the environment within which NOAA functions may change, the process of the enterprise must allow for adaptation and responsiveness, while communicating a compelling and bold story that is NOAA research.